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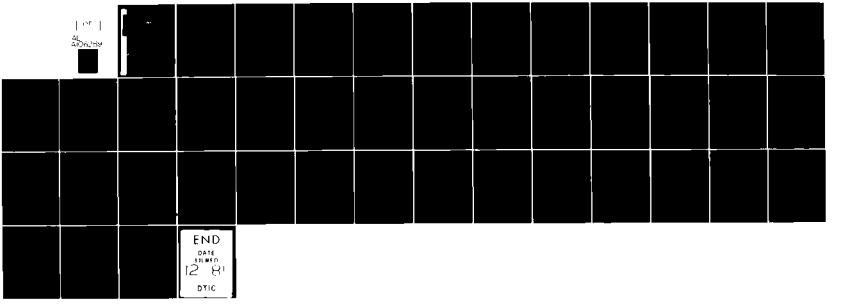

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Department of Defence
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Laboratory Evaluation of Australian Ration Packs (u)

K. W. JAMES
and
C. H. FORBES-EWAN

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(10) K. W. JAMES & C. H. FORBES-EWAN

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SUMMARY

Methods and results of chemical analysis of the 1977-78 packaging program are presented. The content of moisture, fat, protein, carbohydrate, thiamin, ascorbic acid, and energy of rations are included. Daily available nutrients are estimated and evaluated with respect to daily requirement. Some rations were found to be nutritionally unbalanced with respect to protein content. Certain rations were found to be marginally energy deficient.

POSTAL ADDRESS: The Director,
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CONTENTS

INTRODUCTION

Previous reports (AFFSE 1970-78) (1-8) have detailed the results of analyses of ration packs from preceding packaging programmes. This report details the results obtained by analysis of complete packs from the 1977-8 packaging programme.

A sample of each ration component was analysed for Moisture, Fat, Ash, Protein, Thiamin (Vitamin B_1), Ascorbic Acid (Vitamin C) and Salt. The value for carbohydrate was estimated by the difference between 100 and the sum of the values for Moisture, Fat, Ash, and Protein. Energy values in Kilojoules (Kilocalorie = 4.186 Kilojoules) were calculated from the values obtained for Carbohydrate, Fat and Protein, using the factors recommended by Thomas & Corden (11).

TABLE I

Energy Per Gram of Nutrient

Nutrient	kJ/g
Protein	17
Fat	37
Carbohydrate	16
Alcohol	29

METHODS OF CHEMICAL ANALYSIS

The methods used for the chemical analysis for moisture, fat, ascorbic acid and ash in all samples as described below were the same as in previous years. The methods used for protein, salt and thiamin in Combat Ration 10 Man, Patrol Ration 1 Man, Patrol Ration Papua/New Guinea, and Emergency Flying Ration, were also the same as in previous years, and are described below. These methods were revised for Combat Ration 1 Man, and appear below with the prefix-revised.

1. **Moisture** – Vacuum Oven Method

As described in 22.013 AOAC[10] except a temperature of 60 $\pm$ 1°C and vacuum of 690 mm mercury and a period of 16 hours was used.

The method gave a standard deviation of 0.249% for 24 paired determinations.

2.a. **Fat** – Soxhlet Method

As described in 7.045 AOAC[10] except 40 - 60°C boiling petroleum solvent was the extraction reagent. The dried material from the moisture determination was used as the starting material.

The method gave a standard deviation of 0.192% or 1.92% RSD for 30 paired determinations.

2.b. **Fat** – Mojonnier Method – milk products

As described in 14.019 AOAC[10] except the acid digest was transferred before rinsing the digestion beaker with 10 mL alcohol, and the beaker was successively rinsed with the extraction solvents. The fat and solvent were decanted into a preweighed crystallizing dish.

The method gave a standard deviation of 0.198% or 1.98% RSD for 13 paired determinations.

3.a. **Ascorbic Acid (Vitamin C)** – Dichlorophenolindophenol Method

As described in 43.051-43.055 AOAC[10].

The method gave a standard deviation of 2.17 mg/100g.

3.b. **Ascorbic Acid** – in Jams

As described in 43.051-43.055 AOAC[10] except the strength of standard was doubled and Dichlorophenolindophenol was 400 gm/L. The jam was dispersed in 5 mL of Glacial Acetic Acid, then diluted with 100 mL deionized water for the titration.

The method gave a standard deviation of 0.79 mg/100g.

4. **Ash** – Muffle Furnace

As described in 31.012 AOAC[10] except the material was progressively heated in steps of 50°C from 100°C to 520°C in a porcelain crucible.

The method gave a standard deviation of 0.26% for 44 paired determinations.

5.a. **Protein** – Manual Kjeldahl Method

As described in 2.049 AOAC[10]. Calculations used the factors:–

% Protein	= %N x 6.25	for meats
% Protein	= %N x 5.70	for cereals
% Protein	= %N x 6.37	for dairy products
% Protein	= %N x 6.25	for mixed products

The method gave a standard deviation of 0.59% for 25 paired determinations over the whole range.

5.b. **Revised Protein** – Automated Kjeldahl

The apparatus available from Foss Electric Pty Ltd termed a Kjel-Foss Automatic 16210 was used as per manufacturers instructions. All samples were determined in duplicate and were repeated if duplicates differed by more than 0.5% Protein. The calibration of the machine was checked with pure compounds and adjusted so that % Nitrogen were within 2% of theoretical value.

The method gave a standard deviation of 0.24% for 31 paired determinations over the whole range. The recovery of nitrogen was

Compound	Mean & Recovery	Standard Deviation
Lysine	99.5%	0.68%
Nicotinic Acid	98.8%	1.4%
Acetanalide	100.5%	0.93%

6.a. **Salt** – Ashing and Dichromate Titration

The residue from the ash determination was extracted with successive portions of hot deionized water and filtered through a Whatman No 1 filter paper, until 100 mL were obtained in a volumetric flask. 20 mL aliquot was neutralized with .1N Sulphuric Acid or .1N Sodium Hydroxide to the phenolphthalein end point, and then titrated with .5N Silver Nitrate using Potassium Dichromate indicator.

The method gave a standard deviation of 0.267% for 34 paired determinations.

6.b. **Revised Salt** – Autotitrator Method

Salt titrations were done using a Silver-Silver Chloride electrode to -162mV end point, with proportional band of 0.5 and 20 second end point delay. Determinations from the ash used the extraction procedure for the manual procedure. Direct determinations were made by boiling the sample with 100 mL deionized water, cooling, adding 4 mL concentrated Nitric Acid and titrating.

The method gave a standard deviation of 0.042% for 32 paired determinations.

7.a. **Thiamin** – Fluorimetric

As described in 43.025B AOAC[10] but omitting the purification step (43.027), and ensuring the timing of the determinative step (43.029) was the same for all samples.

7.b. **Thiamin** – Fluorimetric – Isobutanol Extraction

As described in 43.025b AOAC[10] but replacing the purification (43.027) with two extractions with 26 mL of Isobutyl Alcohol at pH 3.5; and ensuring the timing of the determinative step (43.029) was the same for all samples.

The method gave a standard deviation of 0.0308 mg/100g for 13 paired determinations.

RESULTS

This evaluation is based on the nutritional requirements stated in the Army Equipment Planning Summary No 69, Operational Rations and in Weapons and Equipment Policy Statement No 302/4, Operational Rations. These requirements are considered to be equivalent to those of a Reference Man as described by the National Health and Medical Research Council. The reference man is 70 kg and has the requirements for various grades of activity listed in Table 2.

TABLE 2

NUTRIENT REQUIREMENTS OF REFERENCE 70 KG MAN PER DAY

NUTRIENT	REQUIREMENT			
	GRADE 0	GRADE 1	GRADE 2	GRADE 3
Energy kJ	8,400	11,600	13,400	15,800
Protein g	70	70	70	70
Protein 12% energy g	58.8	81.2	93.8	110.6
Ascorbic Acid (Vit C) mg	30	30	30	30
Thiamin (Vit B_1) mg	.84	1.16	1.34	1.58
Description of Activity	Maint.	Normal 8 hrs light physical work/day e.g. clerical	Moderate e.g. Infantry	Strenuous e.g. Labouring

Sources NH & MRC, Dietary Allowance for Use in Australia (9)
Thomas & Corden (11)

PATROL RATION PAPUA NEW GUINEA (PR PNG)

The detailed results for PR PNG are quoted in Appendix 1.

Table 3 summarizes the total nutrients available in each pack. When compared with the nutrient requirements of the reference man at Grade 2 activity in Table 2 there is a deficiency of energy of between 900 and 1,600 kJ per pack. This deficiency would be made up in the short run from body fat reserves; however, continued Grade 2 activity would lead to a demand for a supplement such as an additional cake of Ration Chocolate. The protein content is adequate for one man at near the maximum recommended daily rate. The thiamin and ascorbic acid contents are more than adequate for the normal daily requirement; however these levels will fall as the rations age. The salt content can be considered excessive, but would be adequate for replacement of salt lost through sweating.

Table 4 summarizes the distribution of energy available from the rations. This distribution is considered satisfactory.

TABLE 3

PAPUA NEW GUINEA PATROL RATION

NUTRIENT CONTENT

MENU	TOTAL WEIGHT g	MOISTURE g	FAT g	ASH g	PROTEIN g	CHOs g	SALT g	THIAMIN mg	ASCORBIC ACID mg	ENERGY kJ
Common Items	505	33.78	25.40	11.50	39.23	395.38	8.58	18.42	34.85	7900
A	961	279	91	25	90	476	14.7	18.9	46.1	12500
B	879	223	97	18	91	450	13.4	18.7	67.8	12300
C	909	269	89	23	80	448	17.1	18.7	72.3	11800
D	970	282	74	23	111	480	15.7	18.6	40.8	12300

TABLE 4

PAPUA NEW GUINEA PATROL RATION

PERCENT DISTRIBUTION OF ENERGY

MENU	FAT	PROTEIN	CHO's	TOTAL kJ
Common Items	11.8	8.4	79.7	7900
A	26.9	12.2	60.9	12500
B	29.0	12.6	58.4	12300
C	27.9	11.5	60.6	11800
D	22.1	15.4	62.5	12300

EMERGENCY FLYING RATION (EFR)

The detailed results for EFR are quoted in Appendix 2.

Table 5 summarizes the total nutrients available in each pack. The energy available in the pack is sufficient to supply the needs of a reference man for one day at a Grade 1 level of activity. The protein content is sufficient to supply the minimum requirement for 1½ days or the maximum requirement for one day. The thiamin and ascorbic acid contents are more than adequate, but these levels will decline with age. The salt content is adequate to replace losses due to sweating in the wide range of conditions under which the ration may be used.

Table 6 summarizes the distribution of energy available from the rations. The proportion available from protein exceeds the recommended maximum of 12%. However, this imbalance can be expected to be redressed by the supplementation of the diet with foods obtained by foraging.

TABLE 5

EMERGENCY FLYING RATION

NUTRIENT CONTENT

TOTAL WEIGHT g	MOISTURE g	FAT g	ASH g	PROTEIN g	CHO'S g	SALT g	THIAMIN mg	ASCORBIC ACID mg	ENERGY kJ
690.7	41.55	101.7	39.33	105.9	402.2	27.15	4.20	171.4	12,000

TABLE 6

EMERGENCY FLYING RATION

PERCENT DISTRIBUTION OF ENERGY

Fat	31.4%
Protein	15.0%
CHO's	53.6%
Total kJ	12,000

PATROL RATION 1 MAN (PR1M)

The detailed result for PR1M are quoted in Appendix 3.

Table 7 summarizes the total nutrients available in each pack. The energy available in each pack is sufficient to sustain a reference man at a Grade 1 level of activity, the deficiency of energy for a Grade 2 level of activity is between 1,400 kJ and 1,800 kJ. This deficiency can be met from the Emergency Ration or by foraging. The protein present in each ration is sufficient to supply the needs of a reference man for at least two days. If this quantity of protein is consumed in one day it will generate an additional demand for 0.350 to 0.425 litres of water per man, over normal needs. The thiamin and ascorbic acid contents are more than adequate, but these levels will decline with age. The salt content is lower than in other rations, but would be adequate, for most conditions. Additional salt may be required if the user is sweating profusely.

Table 8 summarizes the distribution of energy available from the rations. The proportion available from protein greatly exceeds the recommended maximum of 12%. This imbalance can be expected to be redressed if the user forages for additional food such as berries and fruits.

TABLE 7

PATROL RATION ONE MAN

NUTRIENT CONTENT

MENU	TOTAL WEIGHT g	MOISTURE g	FAT g	ASH g	PROTEIN g	CHO'S g	SALT g	THIAMIN mg	ASCORBIC ACID mg	ENERGY kJ
A	687.97	35.38	87.73	22.45	159.12	383.19	11.70	1.87	55.19	12,100
B	690.9	36.05	68.61	26.03	167.34	392.88	11.51	3.61	57.79	11,700
C	689.8	34.18	93.09	24.43	148.89	389.22	13.61	1.51	56.29	12,200

TABLE 8

PATROL RATION ONE MAN

PERCENT DISTRIBUTION OF ENERGY

MENU	FAT	PROTEIN	CHO'S	ENERGY kJ
A	26.9	22.4	50.7	12,100
B	21.7	24.4	53.9	11,700
C	28.2	20.8	51.0	12,200

COMBAT RATION ONE MAN (CR1M)

The detailed results from CR1M are quoted in Appendix 4.

Table 9 summarizes the total nutrients available in each pack. The energy available in packs A, B, C, D is sufficient to sustain a reference man at a Grade 2 level of activity for one day. The energy available in pack E is deficient by 1,100 kJ, and should be increased since the user is not expected to supplement the pack by foraging. An Emergency Ration would make up this deficiency. The protein in packs C and E is excessive and is likely to lead to a demand for 0.120 litres of additional water per man. The thiamin and ascorbic acid present are more than adequate, but these levels will decline with age. The salt content is considered adequate for the conditions of use.

Table 10 summarizes the distribution of energy available in the rations. The proportion available from protein exceeds the recommended maximum of 12% in packs C and E.

TABLE 9

COMBAT RATION ONE MAN

NUTRIENT CONTENT

MENU	TOTAL WEIGHT g	MOISTURE g	FAT g	ASH g	PROTEIN g	CHO'S g	SALT g	THIAMIN mg	ASCORBIC ACID mg	ENERGY kJ
A	1131	419.1	124.0	25.3	83.7	478.7	16.7	3.50	88.53	13,700
B	1134	433.8	117.1	26.6	72.9	483.4	17.3	3.64	55.51	13,300
C	1157	405.6	138.3	29.2	104.6	479.4	19.0	3.21	66.96	14,600
D	1040	323.3	140.2	31.8	86.5	458.6	22.2	3.26	57.94	14,000
E	963	295.9	111.8	34.3	101.8	419.6	19.5	3.16	61.74	12,600

TABLE 10

COMBAT RATION ONE MAN

PERCENT DISTRIBUTION OF ENERGY

MENU	FAT	PROTEIN	CHO'S	TOTAL kJ
A	33.6	10.4	56.0	13,700
B	32.6	9.3	58.1	13,300
C	35.1	12.2	52.7	14,600
D	37.1	10.5	52.4	14,000
E	32.9	13.8	53.4	12,600

COMBAT RATION TEN MAN (CR10M)

The detailed results for CR10M are quoted in Appendix 5.

Table 11 summarizes the total nutrients available in each pack. An estimate of the average usage of supplementary items was made from the issue records for a major user over a four month period. Table 12 summarizes the total nutrients available in each pack when this estimate of supplementary items is added. When compared with the nutrient requirements of the reference man in Table 2 there is more than adequate energy at Grade 1 level of activity; but pack C is deficient by 15,000 kJ and pack B is deficient by 7,000 kJ for a Grade 2 level of activity. However packs A and D have a surplus of 6,000 - 7000 kJ for a Grade 2 level of activity. Each menu provides adequate protein for at least 16 men for one day at the minimum recommended rate. The thiamin and ascorbic acid content of each menu is more than adequate for the daily requirement, however, these levels will fall as the rations age. The salt content is adequate to provide the daily needs including losses due to sweating.

Table 13 summarizes the distribution of energy available from the rations, and Table 14 includes the estimate of supplementary items. The proportion available from protein exceeds the recommended maximum of 12% in each case. These results suggest that the supplementary items could be increased to correct this imbalance.

TABLE 11

COMBAT RATION TEN MAN

NUTRIENT CONTENT
EXCLUDING SUPPLEMENT

MENU	TOTAL WEIGHT g	MOISTURE g	FAT g	ASH g	PROTEIN g	CHO'S g	SALT g	THIAMIN mg	ASCORBIC ACID mg	ENERGY kJ
A	13,969	8,176	1,251	327	984	3,231	285	17.7	1,163	114,700
B	14,183	8,935	988	320	1,001	2,939	243	17.3	1,134	100,600
C	14,249	9,415	934	361	1,039	2,450	261	14.5	1,146	92,200
D	13,965	8,077	1,162	346	1,008	3,373	269	17.8	1,141	114,100

TABLE 12

COMBAT RATION TEN MAN

NUTRIENT CONTENT
INCLUDING SUPPLEMENT ESTIMATE

MENU	FAT g	PROTEIN g	CHO's g	ENERGY kJ
A	1,387	1,164	4,364	140,900
B	1,124	1,180	4,071	126,800
C	1,070	1,218	3,632	118,400
D	1,298	1,187	4,505	140,300

TABLE 13

COMBAT RATION TEN MAN

PERCENT DISTRIBUTION OF ENERGY EXCLUDING SUPPLEMENT

MENU	FAT	PROTEIN	CHO	TOTAL kJ
A	40.4	14.6	45.0	114700
B	36.3	16.9	46.8	100600
C	37.5	19.2	43.3	92200
D	37.7	15.0	47.3	114100

TABLE 14

COMBAT RATION TEN MAN

PERCENT DISTRIBUTION OF ENERGY INCLUDING SUPPLEMENT ESTIMATE

MENU	FAT	PROTEIN	CHO	TOTAL kJ
A	36.4	14.0	49.5	140900
B	32.8	15.8	51.4	126800
C	33.4	17.5	49.1	118400
D	34.2	14.4	51.4	140300

COMPLIANCE WITH

AUSTRALIAN DEFENCE FORCE FOOD SPECIFICATIONS

(ADFFS)

Table 15 lists items which were found to fail at least one ADFFS (15) specification. Of particular concern are the cases where multiple samples were available; CR1M's were all analysed individually and provide the main example.

The biscuit items failed in a majority of cases and this suggests that purchasing sampling should be improved. There is also a high frequency of failure of mixed meat and cereal or vegetable items for the chemical specification of fat content, or moisture content.

There is also a high frequency of failure of fortified items for Vitamin C (Ascorbic Acid) the level found often being half the specification or less. This may be due to storage conditions rather than manufacturing and is a matter of some concern.

TABLE 15

ITEMS FAILING TO COMPLY WITH ADFFS

ITEM	SPECIFICATION	REQUIREMENT	VALUES	TOTAL SAMPLES ANALYSED
Emergency Flying Ration				
Ration Chocolate	Vitamin C	Greater than 22mg/100g	16.8mg/100	1
	Moisture	Less than 4%	4.52%	
Instant Coffee	Moisture	Less than 4%	6.14	1
	Vitamin B_1	Greater than 21.1mg/100g	4mg/100g	
	Vitamin C	Greater than 420mg/100g	197mg/100g	
Milk Powder	Moisture	Less than 4%	5.97%	1
Survival Biscuits	Moisture	2.5 to 4%	4.12%	1
Papua/New Guinea				
Ration Chocolate	Vitamin B_1	Greater than 2.2mg/100g	0.826mg/100g	1
Coffee	Moisture	Less than 4%	8.21%	1
Survival Biscuits	Moisture	2.5 to 4%	6.18%	1
Condensed Milk	Fat	Greater than 9%	7.47%	1
Luncheon Meat Type I	Fat	Less than 20%	20.06%	1
Butter Concentrate	Moisture	Less than .3%	.4%	1
Fruit Candy	Vitamin C	Greater than 106mg/100g	77.25mg/100g	1
Luncheon Meat Type II	Fat	Less than 10%	12.37%	1
Combat Ration Ten Man				
Curry Powder	Ash	Less than 12%	12.29	1
Tomatoes	Vitamin C	Greater than 17.5mg/100g	6.41mg/100g	1
Beef & Gravy	Fat	Less than 12%	14.01%	1

TABLE 15

ITEMS FAILING TO COMPLY WITH ADFFS

ITEM	SPECIFICATION	REQUIREMENT	VALUES	TOTAL SAMPLES ANALYSED
Combat Ration Ten Man				
Spaghetti & Ground Meat	Moisture	Less than 75%	75.89%	1
Steak & Kidney	Fat	Less than 12%	12.24, 12.87%	2
Beef & Vegetable Curry	Fat	Less than 8%	8.36%	1
Luncheon Meat II	Fat	Less than 10%	14.85%	1
Combat Ration One Man				
Beverage Powder	Vitamin C	Greater than .2%	.1, .05, .06, .1, .1	5
Cereal Block	Moisture	Less than 6%	6.18, 6.74, 6.09	5
Survival Biscuits	Moisture	2.5 to 4%	5.29, 4.13, 5.27, 5.39	5
Shortbread Biscuit	Moisture	Less than 4%	4.66, 4.1, 4.37	5
Chocolate	Vitamin C	Greater than 22mg/100g	0, .3, .35, 0, .71	5
Sweetened Condensed Milk	Fat	Greater than 9%	7.04, 7.45, 6.76 7.06, 6.24	5
Butter Concentrate	Moisture	Less than .3%	.51, .59, .62, .47, .49	5
Coffee	Vitamin C	Greater than 420mg/100g	207, 181, 220, 210, 177	5
Sausages & Veges	Fat	Less than 5%	6.72	1
Luncheon Meat II	Fat	Less than 10%	16.9	1

CONCLUSION

Patrol Ration One Man, Emergency Flying Ration, Combat Ration Ten Man and pack E of the Combat Ration One Man have become unbalanced through containing an excess of protein. Patrol Ration One Man is the worst case, and a new pack is being trialled in the field which corrects this problem.

The Patrol Ration Papua New Guinea, Patrol Ration One Man, pack E of the Combat Ration One Man and pack B and C of Combat Ration Ten Man are marginally energy deficient if the user is engaged in a Grade 2 level of activity. The user who undertakes a Grade 2 level of activity, while using these packs, can be expected to seek to supplement the pack either by foraging or by seeking the Emergency Ration.

The evaluation makes no adjustment for such factors as the user preferences. It is known that some items are rejected by a small minority of users as discussed in the report "Field Evaluation of Australian Ration Packs Combat Ration (One Man)". (13) This factor will be corrected to some extent by users swapping items of preference. However, a few items are very unpopular and may lead to serious vitamin deficiencies, e.g. Beverage Base Powders which provide up to a third of the Vitamin C.

A large proportion of items examined failed the chemical specification given in the ADFFS. This indicates either manufacturers are unwilling to manufacture to specification; or the sampling program required by ADFFS is not being observed. The first cause can only be corrected by discussions with industry to reach a suitable compromise. The possibilities of industry adjustment are very limited because Defence contracts for the goods tend to be relatively small. Therefore, it is likely that these specifications will require a review. The second cause requires more careful enforcement of the ADFFS sampling specification (0-1-1).

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Appendix 1

PAPUA NEW GUINEA RATION

NAME COMMON ITEMS	WEIGHT g	MOISTURE %	FAT %	ASH %	PROTEIN %	CHO'S %	SALT %	THIAMIN mg/100g	ASCORBIC ACID mg/100g	ENERGY kJ/100g
Chewing Gum	6.75	3.47	ND	ND	ND	96.53	ND	ND	ND	1544
Chocolate	52.11	4.29	25.27	1.90	8.78	59.76	.22	.826	NS	2040
Coffee	6.92	8.21	ND	9.91	20.68	61.20	.20	NS	504	1330
Rice	253.77	9.84	.35	.31	9.74	79.76	.05	7.03	NS	1454
Salt	7.09	ND	ND	100	ND	ND	100	NS	NS	
Sugar	83.2	ND	ND	ND	ND	100	ND	ND	ND	1600
Survival Biscuits	93.43	6.18	12.14	2.08	9.10	70.50	1.32	NS	NS	1731
Tea Bags	2.01	ND	ND	ND	ND	ND	ND	ND	ND	
TYPE A										
Condensed Milk	65.64	24.92	7.47	1.84	9.12	56.65	.30	.082	NS	1337
Ham & Egg Ration	115.93	69.9	11.82	2.26	9.38	6.64	1.26	.176	NS	703
Luncheon Meat Type I	224.27	65.15	20.06	3.32	11.89	NS	1.90	.086	5.03	937
Potato & Onion Powder	49.86	4.29	4.00	3.55	14.61	73.55	.47	.067	NS	1573
TYPE B										
Butter concentrate	26.29	.40	92.52	2.91	2.29	1.88	2.22	NS	NS	3492
Fruit Candy	42.62	1.89	NS	NS	NS	98.11	ND	NS	77.3	1569
Pork & Beans Ration	119.7	65.24	15.23	2.65	10.55	6.33	1.90	.140	NS	844
Tuna Ration	185.26	59.37	15.61	1.39	20.92	2.71	1.04	.039	NS	976

N.S. = Not Significant N.D. = Not Determined

Appendix 1 (cont)

PAPUA NEW GUINEA RATION

NAME	WEIGHT g	MOISTURE %	FAT %	ASH %	PROTEIN %	CHO'S %	SALT %	THIAMIN mg/100g	ASCORBIC ACID mg/100g	ENERGY kJ/100g
TYPE C										
Beef & Egg Ration	106.61	71.60	10.8	2.34	11.57	3.69	1.85	.251	4.94	655
Butter Concentrate	26.21	.40	92.52	2.91	2.29	1.88	2.22	NS	NS	3492
Corned Beef Ration	229.25	68.85	12.30	3.39	12.14	3.32	2.59	.019	NS	714
Fruit Candy	41.67	1.89	NS	NS	NS	98.11	NS	NS	77.3	1569
TYPE D										
Beef & Gravy Ration	237.75	65.89	11.53	2.49	17.44	2.65	1.86	.015	NS	765
Condensed Milk	65.65	24.92	7.47	1.84	9.12	56.65	.30	.082	NS	1337
Luncheon Meat Type II	111.70	65.62	12.37	2.36	15.34	4.32	2.02	.039	5.33	787
Potato & Onion Powder	49.82	4.29	4.00	3.35	14.61	73.75	.47	.067	NS	1576

NS = Not Significant ND = Not Determined

Appendix 2

EMERGENCY FLYING RATION

NAME	WEIGHT g	MOISTURE %	FAT %	ASH %	PROTEIN %	CHO'S %	SALT %	THIAMIN mg/100g	ASCORBIC ACID mg/100g	ENERGY kJ/100g
COMMON ITEMS										
Sugar	34.19	ND	ND	ND	ND	100	ND	ND	ND	1600
Chocolate	154.19	4.52	25.83	2.19	10.00	57.46	.09	2.41	16.8	2045
Soluble Coffee	6.99	6.14	NS	18.79	18.47	56.60	.94	3.98	197	1219
Beef Block	55.64	4.00	16.38	4.29	71.43	3.90	2.86	.057	NS	1882
Milk Powder	7.02	5.79	.24	4.76	40.91	48.30	.91	.203	NS	1477
Fruit Candy	86.46	2.00	NS	1.94	NS	96.06	.92	NS	146	1536
Cereal Block	115.94	5.01	22.43	1.92	16.28	54.36	.32	.071	NS	1976
Biscuits	80.49	4.12	13.37	2.45	18.41	61.65	1.10	.070	NS	1794
Butterscotch	70.90	1.62	NS	2.11	NS	96.27	.94	NS	NS	1540
Soup Cubes	25.21	1.99	12.90	59.87	12.86	12.38	58.59	.041	20.1	894
Cheese	46.53	40.87	27.37	4.96	20.72	6.08	1.41	NS	NS	1462
Salt	7.15	ND	ND	100	ND	ND	100	ND	ND	

NS = Not Significant ND = Not Determined

Appendix 3

PATROL RATION ONE MAN

NAME	WEIGHT g	MOISTURE %	FAT %	ASH %	PROTEIN %	CHO'S %	SALT %	THIAMIN mg/100g	ASCORBIC ACID mg/100g	ENERGY kJ/100g
TYPE A										
Lamb & Vege Curry	109.7	1.94	21.2	3.34	52.81	20.71	1.35	.149	NS	2013
Beef & Beans	109.9	1.81	16.21	4.43	60.14	17.41	2.14	.069	NS	1900
Fruit Juice Powder Orange	14.1	.23	.41	.37	NS	98.99	.09	NS	132	1599
Biscuit Jam Sandwich	85.6	7.90	17.00	1.02	3.01	71.07	NS	.019	NS	1817
Biscs Shortbread	84.17	3.92	16.39	.64	2.79	76.26	.08	NS	NS	1874
Cheese Sticks	40.3	40.86	16.23	2.48	21.93	18.5	.23	.074	7.49	1296
Milk Skim Dried	28.2	4.96	.24	5.37	38.41	51.02	1.37	.324	NS	1478
Chocolate	49.6	4.23	23.68	2.29	10.41	59.39	.09	2.43	20.4	2003
Rice Freeze Dried	55.2	.91	ND	.47	6.98	91.64	NS	.019	NS	1584
Sugar	85.3	ND	ND	ND	ND	100	ND	ND	ND	1600
Instant Coffee	7.1	6.30	ND	20.34	20.92	52.44	2.34	3.92	329	1194
Tea Bags	4.0	ND	ND	ND	ND	ND	ND	ND	ND	
Salt	7.1	ND	ND	100	ND	ND	100	ND	ND	
Chewing Gum	7.7	3.30	ND	ND	ND	96.7	ND	ND	ND	1547

NS = Not Significant ND = Not Determined

Appendix 3 (cont)

PATROL RATION ONE MAN

NAME TYPE B	WEIGHT g	MOISTURE %	FAT %	ASH %	PROTEIN %	CHO'S %	SALT %	THIAMIN mg/100g	ASCORBIC ACID mg/100g	ENERGY kJ/100g
Beef & Onions	111.4	1.64	7.9	6.01	58.23	26.20	2.29	.084	NS	1702
Roast Sliced Pork	111.0	1.71	12.79	4.09	60.48	20.93	1.07	1.90	NS	1836
Fruit Juice Powder Lemon	14.1	.24	.39	.36	NS	99.01	.07	NS	139	1598
Biscuits Jam Sandwich	85.4	8.01	16.40	1.96	2.94	70.69	.08	.024	NS	1787
Biscuits Shortbread	85.2	4.01	17.23	1.00	3.24	74.52	.06	NS	NS	1884
Cheese Sticks	40.2	40.68	15.49	2.36	22.0	19.47	.41	.068	11.2	1258
Milk Skim Powder	28.1	5.80	.17	5.24	38.24	50.55	1.40	.143	NS	1465
Chocolate	50.4	4.79	20.98	2.34	9.98	61.91	.08	2.04	20.4	1936
Rice Freeze Dried	54.9	1.80	NS	.41	7.23	90.56	NS	.021	NS	1571
Sugar	86.0	ND	ND	ND	ND	100	ND	ND	ND	1600
Instant Coffee	7.2	6.30	NS	20.68	20.47	52.55	2.04	3.84	324	1188
Tea Bags	4.1	ND	ND	ND	ND	ND	ND	ND	ND	
Salt	6.9	ND	ND	100	ND	ND	100	ND	ND	
Chewing Gum	6.0	3.19	ND	ND	96.81	ND	ND	ND	ND	1548

NS = Not Significant ND = Not Determined

Appendix 3 (cont)

PATROL RATION ONE MAN

NAME	WEIGHT g	MOISTURE %	FAT %	ASH %	PROTEIN %	CHO'S %	SALT %	THIAMIN mg/100g	ASCORBIC ACID mg/100g	ENERGY kJ/100g
TYPE C										
Spaghetti Bolognaise	111.1	.97	33.07	2.78	45.19	17.99	1.16	NS	NS	2279
Savoury Steak Fingers	110.4	1.24	7.80	6.23	58.23	26.50	3.47	.050	NS	1702
Fruit Juice Powder Lime	14.1	.31	.47	.36	NS	98.86	.04	NS	142	1599
Biscuits Jam Sandwich	84.9	7.03	18.41	1.47	2.28	70.81	.81	.027	NS	1852
Biscuits Shortbread	85.1	4.79	17.23	.94	3.09	73.95	.08	NS	NS	1873
Cheese Sticks	39.9	40.23	14.69	2.48	20.79	21.81	.37	.079	8.56	1245
Milk Skim Dried	28.0	5.80	.20	4.90	38.98	50.12	1.00	.210	NS	1471
Chocolate	50.2	5.00	22.83	2.32	9.98	59.87	.06	2.09	19.9	1972
Rice Freeze Dried	55.7	1.47	NS	.48	7.43	90.62	NS	.024	NS	1576
Sugar	85.8	ND	ND	ND	ND	100	ND	ND	ND	1600
Instant Coffee	6.9	6.30	NS	19.84	21.34	52.52	1.00	4.10	330	1203
Tea Bags	4.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
Salt	7.2	ND	ND	100	ND	ND	100	ND	ND	ND
Chewing Gum	6.4	3.21	ND	ND	ND	96.79	ND	ND	ND	1548

NS = Not Significant ND = Not Determined

Appendix 4

COMBAT RATION ONE MAN

NAME	WEIGHT g	MOISTURE %	FAT %	ASH %	PROTEIN %	CHO'S %	SALT %	THIAMIN mg/100g	ASCORBIC ACID mg/100g	ENERGY kJ/100g
TYPE A										
Ham & Egg	109.44	56.9	20.43	2.05	14.59	6.03	.91	.130	.85	1100
Beef & Vegetables	228.3	78.51	3.87	1.99	10.62	5.01	1.42	.062	12.8	403
Peaches diced	136.8	86.31	NS	.21	.52	12.96	.01	NS	NS	216
Pre-cooked Rice	54.3	8.87	.15	.32	5.87	84.79	.05	.092	NS	1461
Curry Powder	4.1	7.96	NS	6.63	NS	85.41	1.26	NS	NS	1366
Plum Jam	26.8	24.49	NS	1.01	.35	74.15	NS	.005	73.1	1192
Orange Drink Powder	15.0	.20	NS	.40	NS	99.4	.02	NS	96.5	1590
Biscuit Cereal	60.0	6.09	21.07	1.23	8.53	63.08	.61	.29	4.12	1933
Biscuits Survival	45.7	5.39	11.75	1.99	9.12	71.75	1.48	.148	.41	1737
Biscuits Shortbread	88.1	3.83	19.75	1.48	5.91	69.03	1.23	.143	1.35	1935
Processed Cheese	49.4	43.28	27.44	6.65	20.80	1.83	3.27	.054	1.10	1398
Chocolate Ration	51.9	3.13	24.08	1.85	9.51	61.43	.33	5.21	NS	2035
PK Chewing Gum	6.88	3.96	ND	ND	ND	96.04	ND	ND	ND	1536
Sweet Condensed Milk	73.4	19.27	6.24	1.92	10.68	61.89	.60	.079	6.53	1402
Candy Butterscotch	49.5	.86	NS	1.17	NS	97.97	1.00	NS	NS	1567
Butter Concentrate	28.7	.47	93.00	4.03	1.74	.76	2.98	.024	.66	3482
Sugar	84.8	ND	ND	ND	ND	100	ND	ND	ND	1600
Instant Coffee	7.1	3.79	NS	6.14	19.91	70.16	NS	NS	210	1461
Salt	6.7	ND	ND	100	ND	ND	100	ND	ND	
Tea Bags	3.8	ND	ND	ND	ND	ND	ND	ND	ND	

NS = Not Significant ND = Not Determined

Appendix 4 (cont)

COMBAT RATION ONE MAN

NAME	WEIGHT g	MOISTURE %	FAT %	ASH %	PROTEIN %	CHO'S %	SALT %	THIAMIN mg/100g	ASCORBIC ACID mg/100g	ENERGY kJ/100g
TYPE B										
Pork & Beans	118.8	70.21	9.87	2.67	12.64	4.61	1.83	.195	1.44	654
Jam Raspberry	26.6	25.80	NS	.15	.37	73.68	.01	.005	65.3	1185
Curry Powder	4.1	8.01	NS	7.37	NS	84.62	1.39	NS	NS	1354
Corned Beef Hash	223.4	77.00	5.10	1.96	8.62	7.32	1.27	.160	.88	452
Instant Rice	55.8	9.83	.13	.35	5.79	83.90	.06	.075	NS	1446
Peaches Diced	144.6	81.13	NS	.22	.52	18.13	.01	NS	NS	299
Lemon Drink Powder	14.3	.26	NS	.43	NS	99.31	NS	NS	109	1589
Biscuit Cereal	60.0	5.64	20.0	1.25	9.02	64.09	.66	.266	4.58	1919
Biscuits Survival	44.2	3.89	12.62	2.20	9.32	71.97	1.51	.155	.68	1777
Biscuits Shortbread	88.1	4.37	20.62	1.35	5.97	67.69	1.03	.140	.83	1947
Processed Cheese	48.9	42.94	27.17	6.76	21.30	1.83	3.04	.049	.35	1397
PK Chewing Gum	6.7	3.79	ND	ND	ND	96.21	ND	ND	ND	1539
Sweet Condensed Milk	73.1	21.28	6.76	2.02	10.34	59.60	.59	.084	5.30	1379
Candy Butterscotch	48.9	.91	NS	1.05	NS	98.04	.68	ND	ND	1568
Butter Concentrate	28.9	.49	93.4	4.86	1.93	NS	3.08	.024	1.00	3477
Sugar	80.6	ND	ND	ND	ND	100	ND	ND	ND	1600
Instant Coffee	5.9	3.56	NS	6.15	20.51	69.78	.07	NS	177	1465
Salt	7.1	ND	ND	100	ND	ND	100	ND	ND	
Chocolate Ration	50.3	3.62	25.66	2.01	9.30	59.41	NS	5.10	.71	2058
Tea Bags	3.4	ND	ND	ND	ND	ND	ND	ND	ND	

NS = Not Significant ND = Not Determined

Appendix 4 (cont)

COMBAT RATION ONE MAN

NAME	WEIGHT g	MOISTURE %	FAT %	ASH %	PROTEIN %	CHO'S %	SALT %	THIAMIN mg/100g	ASCORBIC ACID mg/100g	ENERGY kJ/100g
TYPE C										
Luncheon Meat	113.8	66.31	13.97	2.06	13.91	3.75	1.88	.064	.63	813
Jam Apricot	27.2	26.29	NS	.16	.44	73.11	.01	.005	85.2	1177
Curry Powder	3.7	7.14	NS	6.74	NS	86.12	.36	NS	NS	1378
Beef with Gravy	244.7	60.89	11.96	2.80	18.46	5.89	1.57	.021	1.26	850
Instant Rice	55.4	8.74	.15	.36	5.62	85.13	.05	.066	NS	1463
Pears	147.9	81.56	NS	.25	.21	17.98	NS	NS	NS	291
Lime Drink Powder	14.0	.26	NS	.49	NS	99.25	.02	NS	54.6	1588
Biscuits Cereal	62.7	6.74	18.11	1.27	9.35	64.53	.63	.286	23.5	1862
Biscuits Survival	45.0	4.13	11.74	2.27	11.13	70.73	1.39	.252	.79	1755
Biscuits Shortbread	85.4	4.10	20.94	1.70	5.91	67.35	1.07	.117	.45	1953
Processed Cheese	49.4	43.10	26.94	7.30	20.90	1.76	3.07	.049	NS	1380
Chocolate Ration	50.3	3.40	24.94	2.16	9.23	60.27	.32	5.09	.30	2044
PK Chewing Gum	6.7	3.84	ND	ND	ND	96.16	ND	ND	ND	1539
Sweet Condensed Milk	71.2	20.41	7.45	1.96	10.43	59.75	.61	.090	7.13	1409
Candy Butterscotch	50.0	.84	NS	.95	NS	98.21	.89	NS	NS	1571
Butter Concentrate	29.5	.59	92.84	4.41	1.84	.32	2.92	.024	NS	3471
Sugar	82.3	ND	ND	ND	ND	100	ND	ND	ND	1600
Instant Coffee	6.4	3.41	NS	5.86	19.49	71.24	.07	NS	181	1471
Salt	7.6	ND	ND	100	ND	ND	100	ND	ND	
Tea Bags	4.0	ND	ND	ND	ND	ND	ND	ND	ND	

NS = Not Significant ND = Not Determined

Appendix 4 (cont)

COMBAT RATION ONE MAN

NAME	WEIGHT g	MOISTURE %	FAT %	ASH %	PROTEIN %	CHO'S %	SALT %	THIAMIN mg/100g	ASCORBIC ACID mg/100g	ENERGY kJ/100g
TYPE D										
Sausages & Vegetables	127.8	74.54	6.74	3.05	5.97	9.72	1.89	.009	1.78	506
Jam Blackberry	26.6	24.37	NS	.20	.37	75.06	.01	.005	67.9	1207
Soup Powder Beef	6.6	2.34	.14	37.11	9.87	50.54	37.11	NS	1.03	982
Luncheon Meat Type II	224.1	62.06	16.85	2.65	14.85	3.59	2.29	.133	1.5	933
Potato & Onion Powder	49.4	5.28	2.78	4.18	12.10	75.66	.63	.084	1.71	1519
Two Fruits	40.0	80.81	NS	.18	.36	18.65	NS	NS	NS	305
Orange Drink	14.1	.22	NS	.99	NS	98.79	NS	NS	64.8	1580
Biscuits Cereal	60.4	5.96	19.7	1.70	8.84	63.8	.62	.284	4.53	1900
Biscuits Survival	44.6	5.27	12.19	1.88	9.52	71.14	1.56	.152	.87	1751
Biscuits Shortbread	88.9	3.94	20.81	1.92	5.86	67.47	1.09	.135	.38	1949
Processed Cheese	48.1	42.95	26.98	6.93	20.40	2.74	2.72	.048	NS	1389
Chocolate Ration	49.9	3.42	22.64	1.96	9.36	62.62	.31	4.91	.35	1999
PK Chewing Gum	6.8	3.79	ND	ND	ND	96.21	ND	ND	ND	1539
Sweet Condensed Milk	72.0	19.96	7.06	2.15	10.35	60.48	.61	.089	6.25	1405
Candy Butterscotch	48.5	.90	NS	1.22	NS	97.88	.66	NS	NS	1566
Butter Concentrate	29.3	.62	93.06	4.07	1.98	.27	2.98	.024	NS	3481
Sugar	85.3	ND	ND	ND	ND	100	ND	ND	ND	1600
Instant Coffee	7.3	3.71	NS	6.10	19.88	70.31	.06	NS	20	1463
Salt	6.8	ND	ND	100	ND	ND	100	ND	ND	
Tea Bags	3.9	ND	ND	ND	ND	ND	ND	ND	ND	

NS = Not Significant ND = Not Determined

Appendix 4 (cont)

COMBAT RATION ONE MAN

NAME	WEIGHT g	MOISTURE %	FAT %	ASH %	PROTEIN %	CHO'S %	SALT %	THIAMIN mg/100g	ASCORBIC ACID mg/100g	ENERGY kJ/100g
TYPE E										
Steak & Eggs	11.8	67.21	10.80	2.31	18.91	.77	1.65	.047	.82	733
Corned Beef	224.4	56.09	11.00	5.82	25.70	1.39	2.10	.013	1.20	866
Two Fruits	136.1	85.4	NS	.27	.50	13.83	NS	NS	NS	230
Potato & Onion Powder	51.9	4.87	2.42	4.01	13.17	75.53	.50	.114	.67	1522
Chicken Soup Powder	6.3	1.91	.15	40.0	9.48	48.46	40.0	NS	5.08	942
Lemon Drink Powder	15.2	.32	NS	.41	NS	99.27	NS	NS	110	1588
Jam Peach	26.8	24.96	NS	.12	.41	74.51	NS	.005	81.0	1199
Biscuits Cereal	63.7	6.18	15.00	1.28	9.21	68.33	.64	.284	5.45	1805
Biscuits Survival	46.4	5.29	12.32	2.02	10.95	69.42	1.47	.274	.85	1753
Biscuits Shortbread	89.0	4.66	20.14	1.47	5.97	67.76	1.06	.132	.72	1931
Processed Cheese	49.5	43.39	27.53	6.63	20.43	2.02	3.07	.045	1.93	1398
Chocolate Ration	50.8	3.61	21.01	2.19	9.14	64.05	.32	5.13	NS	1958
PK Chewing Gum	6.6	3.98	ND	ND	ND	96.02	ND	ND	ND	1536
Sweet Condensed Milk	7.3	20.98	7.04	2.49	10.34	59.15	.618	.086	6.42	1383
Candy Butterscotch	49.7	.89	NS	1.32	NS	97.79	.88	NS	NS	1565
Butter Concentrate	28.9	.51	91.96	4.39	1.88	1.26	1.57	.024	.70	3455
Sugar	81.2	ND	ND	ND	ND	100	ND	ND	ND	1600
Instant Coffee	6.6	3.12	NS	6.24	20.22	70.42	.05	NS	207	1470
Salt	7.2	ND	ND	100	ND	ND	100	ND	ND	
Tea Bags	3.9	ND	ND	ND	ND	ND	ND	ND	ND	

NS = Not Significant ND = Not Determined

Appendix 5

COMBAT RATION TEN MAN

NAME	WEIGHT g	MOISTURE %	FAT %	ASH %	PROTEIN %	CHO'S %	SALT %	THIAMIN mg/100g	ASCORBIC ACID mg/100g	ENERGY kJ/100g
COMMON ITEMS										
Butter Concentrate	341.44	.30	92.96	2.68	4.01	.05	2.85	NS	NS	3508
Coffee Soluble	56.96	3.90	.16	9.97	20.24	65.73	.65	1.95	776	1402
Curry Powder	28.62	9.31	6.33	12.29	11.28	60.79	9.14	.058	NS	1398
Milk Condensed Unsweet	825.04	72.20	8.24	1.70	7.90	9.96	1.42	.011	NS	598
Milk Condensed Fortified	410.61	71.42	8.39	1.73	7.90	10.56	1.79	.013	77.4	614
Potatoes Whole	1865.84	82.84	NS	1.36	1.29	14.51	.47	.019	3.01	254
Salt	85.76	1.50	ND	98.50	ND	ND	98.5	ND	ND	
Sugar	867.96	ND	ND	ND	ND	100	ND	ND	ND	1600
Tea	107.26	ND	ND	ND	ND	ND	ND	ND	ND	
Tomato Sauce	251.39	69.66	.08	3.57	6.17	20.52	3.26	.05	23.3	436
Vegetable Extract	104.64	32.97	.12	14.32	31.06	21.53	10.75	11.2	NS	876
MENU A										
Fruit Pudding	1562.08	27.95	11.87	1.6	4.26	54.32	1.25	.032	NS	1380
Jam Apricot	263.25	26.83	NS	.28	NS	72.89	.41	NS	49.9	1166
Jam Raspberry	246.81	29.22	NS	.19	NS	70.59	.70	NS	41.2	1129
Peas Green	892.68	78.64	NS	NS	4.07	17.29	.61	.021	NS	345
Soup Powder Beef Noodle	130.28	2.00	3.32	21.17	14.13	59.38	20.96	NS	NS	1313
Tomatoes Peeled	873.24	93.41	NS	1.04	1.44	4.11	1.45	.011	6.41	90
Beef and Gravy	1818.92	64.81	14.01	1.98	14.41	4.79	1.24	.019	NS	840
Chopped Pork	1360.88	60.42	18.64	2.01	14.89	4.04	1.79	.210	NS	1007
Spaghetti with Ground Meat	1875.6	75.89	6.98	1.47	10.01	5.65	1.36	.014	NS	519

NS = Not Significant ND = Not Determined

Appendix 5 (cont)

COMBAT RATION TEN MAN

NAME	WEIGHT g	MOISTURE %	FAT %	ASH %	PROTEIN %	CHO'S %	SALT %	THIAMIN mg/100g	ASCORBIC ACID mg/100g	ENERGY kJ/100g
MENU B										
Fruit Salad	1757.40	83.14	NS	.14	NS	16.72	NS	NS	1.20	268
Jam Apricot	263.25	26.83	NS	.28	NS	72.89	.41	NS	49.9	1166
Jam Blackberry	250.93	29.72	NS	.21	NS	70.07	.53	NS	42.6	1121
Peas Green	892.68	78.64	NS	.59	4.07	16.70	.32	.094	NS	336
Soup Powder Tomato	171.43	1.76	5.91	15.74	6.97	69.62	17.12	NS	NS	1451
Sweet Corn Kernels	904.16	82.41	.42	1.04	.41	15.72	.79	NS	NS	274
Beef and Beans	1839.56	65.70	5.98	2.19	12.48	13.65	1.19	.034	NS	652
Luncheon Meat Type I	1339.12	59.86	15.49	1.97	17.42	5.26	1.47	.141	NS	953
Steak & Kidney	1819.32	66.88	12.87	1.96	15.84	2.45	.86	.024	NS	785
MENU C										
Beans Green Sliced	902.36	91.14	NS	1.91	.84	6.11	.86	.024	.47	112
Carrots whole	878.84	92.46	NS	1.15	.66	5.73	1.78	NS	NS	103
Jam Strawberry	500.72	27.63	NS	.15	NS	72.22	.78	NS	45.0	1155
Peaches sliced Cling stone	1768.32	83.40	NS	.24	.72	15.64	NS	NS	2.40	262
Soup Powder Chicken noodle	131.99	2.37	3.16	21.89	12.26	60.32	22.28	.090	NS	1290
Beef and Tomato Puree	1862.80	70.91	9.84	1.79	14.62	2.84	.74	.037	NS	658
Beef & Vegetable Curry	1823.64	72.90	8.36	1.69	11.44	5.61	.96	NS	NS	594
Corned Beef	1434.88	60.10	12.01	4.32	22.14	1.43	1.99	NS	NS	844

NS = Not Significant ND = Not Determined

Appendix 5 (cont)

COMBAT RATION TEN MAN

NAME	WEIGHT g	MOISTURE %	FAT %	ASH %	PROTEIN %	CHO'S %	SALT %	THIAMIN mg/100g	ASCORBIC ACID mg/100g	ENERGY kJ/100g
MENU D										
Beans Green Sliced	902.36	91.14	NS	1.01	.84	7.01	.76	.021	6.42	126
Bean	958.44	71.61	NS	1.99	6.57	19.83	2.28	.092	NS	429
Fruit Pudding	1562.08	27.95	11.87	1.60	4.26	54.32	1.25	.046	NS	1380
Jam Blackberry	250.93	29.72	NS	.21	NS	70.07	.53	NS	42.6	1121
Jam Raspberry	246.81	29.22	NS	.19	NS	70.59	.70	NS	41.2	1129
Soup Powder Pea & Ham	157.03	3.95	6.38	11.91	19.97	57.79	12.8	.330	NS	1500
Beef Steak & Kidney	1777.84	69.01	12.24	1.40	16.48	.87	.49	.028	NS	747
Beef & Vegetables	1806.68	70.98	6.92	2.01	10.21	9.88	1.34	.051	NS	588
Luncheon Meat Type II	1357.20	60.25	14.85	2.84	12.09	9.97	1.47	.046	NS	915

NS = Not Significant ND = Not Determined

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